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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER	
NGUYEN, HIEP	
ART UNIT	**PAPER NUMBER**
2816	

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/672,437	NALBANT, MEHMET K.	
	Examiner	Art Unit	
	Hiep Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 14-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 14-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03-28-05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is responsive to the amendment filed on 03-29-05. Applicant' arguments with respect to reference Patel et al. (US Pat. 6,456,510) have been carefully considered but they are not deemed to be persuasive to overcome the reference. Thus, the claims remain rejected under Patel. The rejection may change because of the amendment and for clarification.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recitations "switching converter", "the controller circuit", "converter switching transistors" in claim 12, " a switching converter" in claim 13, " synchronous rectifiers" in claims 14 and 27, "a converter output circuit" in claim 15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8-10, 12, 14, 22-27 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction and/or clarification is required.

Regarding claims 8 and 9, the recitation " wherein the pulse width modulation switching regulator controller circuit will start when the voltage applied to the pulse width modulation switching regulator controller circuit approaches the voltage of the **active** source of power" is indefinite because it is not clear what the "the active source of power" is meant by and what is "the voltage". The recitations "the voltage" and "the active source of power" lacks antecedent basis. The same rationale is applied to the recitation " the voltage" in claims 9 and 10. The recitation "when the voltage applied to the pulse width modulation switching regulator controller circuit approaches the voltage of the **active** source of power" is indefinite because it is not clear as to the "voltage" is the power supply voltage or the signal voltage. The Applicant is requested to point out in the drawing the "active source of power" and to define what is the "the voltage". The recitation "when the voltage applied to the pulse width modulation switching regulator controller circuit approaches the voltage of the **active** source of power

Regarding claim 10, the recitation " the source of power" is indefinite because it is not clear as to the "source of power" is the same or different than the " active source of power" in claim 8.

Regarding claim 12, the recitation " further comprising switching transistors in the integrated circuit, the switching transistors being coupled to an output of the PWMSRCC" is indefinite because it is not clear what is the "PWMSRCC" and where are the "switching transistors" in the drawing. The recitation "the PWMSRCC " lacks antecedent basis.

Regarding claims 14 and 27, the recitation "wherein the pulse width modulation switching regulator controller further comprises circuit for providing a control output for

coupling to control synchronous rectifiers on the secondary side of an isolation transformer coupled to converter switching transistors on the output of the pulse width modulation switching regulator controller circuit" is indefinite because it is confusing. The Applicant is requested to show which drawing the circuit of claim 14 reads on and to point out in the drawing the "circuitry for providing...", "synchronous rectifiers", " the secondary side of an isolation transformer' and "switching transistors".

Regarding claim 22, the recitation " the hot swappable pulse width modulation converter" is indefinite because it is not clear as to this "hot swappable pulse width modulation converter" is the same or different than the "the hot swappable pulse width modulation switching regulator controller" in claim 21.

Regarding claims 23-26, the recitation " the hot swappable pulse width modulation converter" is indefinite because it is not clear as to this "hot swappable pulse width modulation converter" is the same or different than the "the hot swappable pulse width modulation switching regulator controller" in claim 15.

Regarding claim 30 the recitation " wherein the switching converter has an isolated output and further comprising generating a control signal for synchronizing synchronous rectifiers in the isolated output circuitry" is indefinite because it is not clear what the "isolated output" is meant by and what are the "synchronous rectifiers" in the drawing. The "a control signal" and "the isolated output circuitry" are not shown in the drawing. The recitation "control signal for synchronizing synchronous rectifiers in the isolated output circuitry" is indefinite because it is misdescriptive. Assume that the " isolated output circuitry" is the circuit connected to the secondary of transformer (T1) then no "control signal" is seen generated for controlling this circuit.

Claim 11 is indefinite because of the technical deficiencies of claim 10.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-11, 15-18, 21-25, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Patel et al. US (Pat. 6,456,510).

Regarding claim 1, figures 7 and 10 of Patel show a hot swappable pulse width modulation switching regulator controller comprising:

a hot swap transistor (Q1);

a pulse width modulation switching regulator controller circuit (PWM COMP) coupled in series with the hot swap transistor;

a hot swap circuit (901) coupled to a control terminal of the hot swap transistor;

the hot swap circuit, when the hot swap circuit and the series combination of the hot swap transistor and the pulse width modulation switching regulator controller circuit are coupled to an active source of power (Vin), turning on the hot swap transistor (901) at a controlled rate;

whereby power is applied to the pulse width modulation switching regulator controller circuit at a controlled rate in spite of the sudden application of power to the hot swappable pulse width modulation switching regulator controller (col. 12, lines 13-48);

the pulse width modulation switching regulator controller circuit and the hot swap circuit inherently being in a single integrated circuit.

Regarding claims 2, 3 and 4, because of the (PWM), control circuit (902) and the transformer (T2), the control voltage applied to the gate of transistor (Q1) increases to a predetermined rate to turn transistor (Q1) on. The predetermined maximum current flowing through transistor (Q1) depends on the predetermined maximum voltage applied to the gate of transistor (Q1).

Regarding claims 7 and 21, because the ramp signal is proportional to the AC current through the main inductor L1, the PWM will start with a minimum pulse width and increases until the output of the PWM is within regulation (col. 12, lines 13-36).

Regarding claims 8 and 9, the pulse width modulation switching regulator controller circuit (PWM) will start when the voltage applied to the pulse width modulation switching

regulator controller circuit approaches the predetermined voltage of "the (active) source of power". Note that when the power supply applied to the circuit reaches a predetermined value, the pulse width modulation switching regulator controller circuit (PWM) will start.

Regarding claims 10 and 11, the active level of the output of the PWM is a high level. When the voltage applied to the (-) input of the PWM is lower (approaching) than the source voltage applied to the (+) input, the PWM start to activate circuit (902). When the voltage applied to the (-) input of the PWM is higher (approaching) than the source voltage applied to the (+) input, the PWM will not start to activate circuit (902).

Regarding claim 12, the switching transistors are transistors (Q2, Q3),

Regarding claim 15, figure 1 Patel shows a hot swappable pulse width modulation switching regulator controller comprising:

a hot swap transistor (Q1);

a converter output circuit (Q3, L1, R1-R3, ESR, Cout);

a pulse width modulator (PWM COMP);

a hot swap circuit (901) coupled to a control terminal of the hot swap transistor; the hot swap circuit for turning on the hot swap transistor at a controlled rate; whereby power is applied to the pulse width modulation controller at a controlled rate in spite switching regulator of the sudden application of power to the hot swappable pulse width modulation switching regulator controller (col. 12, lines13-48).

Regarding claims 16-19, because of the (PWM), control circuit (902) and the transformer (T2), the control voltage applied to the gate of transistor (Q1) increases to a predetermined rate to turn transistor (Q1) on. The predetermined maximum current flowing through transistor (Q1) depends on the predetermined maximum voltage applied to the gate of transistor (Q1). Hot swap transistor (Q1) is part of the integrated circuit.

Regarding claim 21, because the ramp signal is proportional to the AC current through the main inductor L1, the PWM will start with a minimum pulse width an increases until the output of the PWM is within regulation (col. 12, lines 13-36).

Regarding claims 22 and 23, the active level of the output of the PWM is a high level. When the voltage applied to the (-) input of the PWM is lower (approaching) than the source voltage applied to the (+) input, the PWM start to activate circuit (902). When the

voltage applied to the (-) input of the PWM is higher (approaching) than the source voltage applied to the (+) input, the PWM will not start to activate circuit (902).

Regarding claims 24 and 25, the active level of the output of the PWM is a high level. When the voltage applied to the (-) input of the PWM is lower (approaching) than the source voltage applied to the (+) input, the PWM start to activate circuit (902). When the voltage applied to the (-) input of the PWM is higher (approaching) than the source voltage applied to the (+) input, the PWM will not start to activate circuit (902).

Regarding claim 28, figures 7, 10 of Patel shows a method operating a switching converter having controller comprising:

a) when voltage is first supplied to the converter, increasing the voltage applied to the switching converter controller at a controlled rate (Q1 is turned on/of with a controlled rate);

b) when the voltage applied to the switching converter controller approaches the voltage supplied to the converter, starting the switching converter controller with a minimum pulse width (the ramp signal is proportional to the AC current through the main inductor L1 (col. 12 lines 26-29); and

c) increasing the pulse width until the converter comes into regulation. The ramp signal that creates the pulses is related to the output voltage thus, the pulse width increases until the converter comes into regulation (col. 12 lines 33-36).

Regarding claim 29, the active level of the output of the PWM is a high level. When the voltage applied to the (-) input of the PWM is lower (approaching) than the source voltage applied to the (+) input, the PWM start to activate circuit (902). When the voltage applied to the (-) input of the PWM is higher (approaching) than the source voltage applied to the (+) input, the PWM will not start to activate circuit (902).

Claims 15-18, 21, 22 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Boylan et al. US (Pat. 5,282,123).

Regarding claim 15, figure 1 of Boylan shows a hot swappable pulse width modulation switching regulator controller comprising:

a hot swap transistor (12);

a converter output circuit (20, 21, 23, 24, 25, 26);

a pulse width modulator (15);

a hot swap circuit (13) coupled to a control terminal of the hot swap transistor; the hot swap circuit for turning on the hot swap transistor at a controlled rate; whereby power is applied to the pulse width modulation controller at a controlled rate in spite switching regulator of the sudden application of power to the hot swappable pulse width modulation switching regulator controller (col. 2, lines26-44).

Regarding claims 16, 17 and 18, because of the PWM (15), hot swap circuit (13), circuits (31 and (14), the control voltage applied to the gate of transistor (12) increases to a predetermined rate to turn transistor (12) on. The predetermined maximum current flowing through transistor (12) depends on the predetermined maximum voltage applied to the gate of transistor (12).

Regarding claim 21, the pulse width starts with a small value and the PWM will start with a minimum pulse width and increases until the output of the PWM is within regulation.

Regarding claim 22, the active level of the output of the PWM is a high level for turning transistors (110 and (12) on when the voltage applied to the PWM start to rise.

Regarding claim 28, figures 7, 10 of Patel shows a method operating a switching converter having controller comprising:

a) when voltage (Vin) is first supplied to the converter, increasing the voltage applied to the switching converter controller at a controlled rate (transistor 11 is turned on/of with a controlled rate generated by the PWM 15);

b) when the voltage applied to the switching converter controller approaches the voltage supplied to the converter, starting the switching converter controller with a minimum pulse width.

c) increasing the pulse width until the converter comes into regulation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 6, 12, 13, 19, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. US (Pat. 6,456,510).

Regarding claims 5, 12, 13 and 19, figures 7 and 10 of Patel includes all the limitations of these claims except for the limitation that the components of the circuit (hot swap transistor and converter switching transistors) are on the integrated circuit. However, it is old and well known that with the new IC technique, all elements of a circuit can be fabricated on a piece of silicon (IC circuit) for reducing the size thus, minimizing the fabrication cost. Therefore, it would have been obvious to those skilled in the art to fabricate the circuit of Patel in integrated form for cutting cost and reducing size.

Regarding claims 6, 20 and 26 figure 7 of Patel includes all the limitations of these claims except for the limitation that the hot swap transistor is a discrete transistor. It is old and well known that a discrete transistor has a larger size than a transistor built on an IC circuit and a discrete transistor can conduct a large current. Therefore, it would have been obvious to those skilled in the art to replace the hot swap transistor (Q1) of Patel with a discrete transistor in case a large driving current is required.

Response to Arguments

In the Remarks, page 8, the Applicant argues that Q1 is not a "hot swap transistor" and "the pulse width modulation switching regulator controller circuit and the hot swap circuit inherently being in a single integrated circuit" is clearly incorrect". The invention, figure 2 of the present application is a pulse width modulation circuit comprising a transistor (Qhs) so called "hot swap transistor" controlled by a circuit (30) so called "hot swap circuit" for regulating the flow of current in the transformer (T1). Figure 10 of Patel is a pulse width modulation circuit comprising transistor (Q1) for regulating the flow of current in the transformer (T1). Thus, the circuit of Patel and the circuit of the present application are similar and transistor (Q1) can be labeled to be the hot swap transistor and circuit (901) can be

labeled to be the hot swap circuit. The labels of the claimed components of a circuit do not make the claimed circuit distinguished from the prior art. The Applicant also argues that "Patel clearly does not show a single integrated circuit. Column 3, lines 40-43 and column 5 lines 15-20 disclose that the pulse width modulator of Patel is a part of an I/O circuit and the I/O circuit is built in an integrated circuit (ASIC).

In page 9, the Applicant argues that: "With respect to claim 7, it should be note that because the error signal is maximum at startup, a pulse width modulator will normally start with a maximum pulse width (?) and decrease until the output is within regulation. This argument is not true because comparator (PWMCOMP) of Patel compares a saw tooth signal with an error signal. When the error signal starts with a maximum value, the pulse with is minimum and the pulse width is larger when the error signal decreases.

In page 9 and 10, the Applicant argues that transistor 12 in Boyland is not a hot swap transistor, but rather a switching transistor as part of the pulse width modulator. As discussed above, the invention, figure 2 of the present application is a pulse width modulation circuit comprising a transistor (Qhs) so called "hot swap transistor" controlled by a circuit (30) so called "hot swap circuit" for regulating the flow of current in the transformer (T1). Figure 1 of Boylan is a pulse width modulation circuit comprising transistor (12) for regulating the flow of current in the transformer (17). Thus, the circuit of Boylan and the circuit of the present application are similar and transistor (12) is considered to be a hot swap transistor.

The Applicant also argues that fabricating the circuit of Patel in an IC for cutting cost and reducing size is a hindsight. It is well know that every electronic element including capacitor and inductor can be built in an IC for cutting cost and reducing size thus, the circuit of Patel also can be built on an IC for these above reasons. Moreover, column 3, lines 40-43 and column 5 lines 15-20 disclose that the pulse width modulator of Patel is a part of an I/O circuit and the I/O circuit is built in an integrated circuit (ASIC).

Conclusion

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep Nguyen whose telephone number is (571) 272-1752. The examiner can normally be reached on Monday to Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hiep Nguyen
06-02-05

TUAN T. LAM
PRIMARY EXAMINER